CLAIMS:

1. A multi-channel encoder (5; 15) operable to process input signals conveyed in a plurality of input channels (CH1 to CH3; 400 to 450) to generate corresponding output data comprising down-mix output signals (610, 620) together with complementary parametric data (600), the encoder (5; 15) including:

(a) a down-mixer for down-mixing the input signals (CH1 to CH3; 400 to 450) to generate the corresponding down-mix output signals (610, 620); and

(b) an analyzer (180) for processing the input signals (CH1 to CH3; 400 to 450), said analyzer (180) being operable to generate said parametric data complementary to the down-mix output signals (610, 620),

said encoder being operable when generating the down-mix output signals to allow for subsequent decoding of the down-mix output signals for predicting signals of channels processed and then discarded within the encoder.

2. A multi-channel encoder (5; 15) according to Claim 1, said encoder (5;15) being operable to process the input signals (CH1 to CH3; 400 to 450) on the basis of time/frequency tiles.

3. A multi-channel encoder (5; 15) according to Claim 2, wherein the tiles are defined either before or in the encoder (5; 15) during processing of the input signals (CH1, to CH3; 400 to 450).

4. A multi-channel encoder (5; 15) according to Claim 1, wherein the analyzer is operable to generate at least part of the parametric data ($C_{1,i};C_{2,i}$) by applying an optimization of at least one signal derived from a difference between one or more input signals and an estimation of said one or more input signals which can be generated from output data (600, 610, 620) from the multi-channel encoder (5; 15).

5. A multi-channel encoder (5; 15) according to Claim 4, wherein the optimization involves minimizing an Euclidean norm.

6. A multi-channel encoder (5; 15) according to Claim 1, wherein there are N input channels which the analyzer is operable to process to generate for each time/frequency tile the parametric data, the analyzer being operable to output M(N-M) parameters together with M down-mix output signals for representing the input signals (CH1 to CH3; 400 to 450) in the output data (600, 610, 620); M and N being integers and M<N.

7. A multi-channel encoder (5; 15) according to Claim 6, wherein the integer M is equal to two such the output signals are susceptible to being replayed in two-channel stereophonic apparatus and being coded by a standard stereo coder.

8. A signal processor (180) for inclusion in a multi-channel encoder according to Claim 1, the processor (180) being operable to process data in the multi-channel encoder (5; 15) for generating its down-mix output signals and parametric data.

9. A method of encoding input signals (CH1 to CH3; 400 to 450) in a multi-channel encoder (5; 15) to generate corresponding output data (600, 610, 620) comprising down-mix output signals (610, 620) together with complementary parametric data (600), the method including steps of:

(a) providing the input signals (CH1 to CH3; 400 to 450) to the encoder (5; 15) via a plurality (N) of input channels;

(b) down-mixing the input signals (CH1 to CH3; 400 to 450) to generate the corresponding (M) down-mix output signals (610, 620); and

(c) processing the input signals (CH1 to CH3; 400 to 450) to generate said parametric data (600) complementary to the down-mix output signals (610, 620),

wherein processing of the input signals (CH1 to CH3; 400 to 450) in the multi-channel encoder involves determining the parameter data for enabling representations of the input signals (CH1 to CH3; 400 to 450) to be subsequently regenerated, said down-mix signals allowing for decoding thereof for predicting content of signals of channels processed in the encoder and then discarded therein.

10. Encoded output data (600, 610, 620) generated according to the method of Claim 9, said output data (600, 610, 620) stored on a data carrier.

11. A multi-channel decoder (10; 18) for decoding output data generated by an multi-channel encoder (5; 15) according to Claim 1, the decoder (10; 18) comprising:

(a) processing means for receiving down-mix output signals (610, 620) together with parametric data (600) from the encoder (5; 15), the processing means being operable to process the parametric data to determine one or more coefficients or parameters; and

(b) computing means for calculating an approximate representation of each input signal encoded into the output data using the parameter data and also the one or more coefficients determined in step (a) for further processing to substantially regenerate representations (1400 to 1420) of input signals (CH1 to CH3) giving rise to the output data (600, 610, 620) generated by the encoder (5; 15).

12. A signal processor for use in a multi-channel decoder according to Claim 11, said signal processor being operable to assist in processing data in association with regenerating representations of input signals..

13. A method of decoding encoded data in a multi-channel decoder (10; 18), said data being of a form as generated by a multi-channel encoder (5; 15) according to Claim 1, the method including steps of:

(a) processing down-mix output signals (610, 620) together with parametric data (600) present in the encoded data, said processing utilizing the parametric data to predict one or more coefficients or parameters; and

(b) calculating an approximate representation of each input signal encoded into the encoded data using the parameter data and also the one or more coefficients determined in step (a) for further processing to substantially regenerate representations (1400 to 1420) of input signals (CH1 to CH3) giving rise to the encoded data (600, 610, 620) generated by the encoder (5; 15).